

When the Stakes are High: Evacuation Quality and Safety

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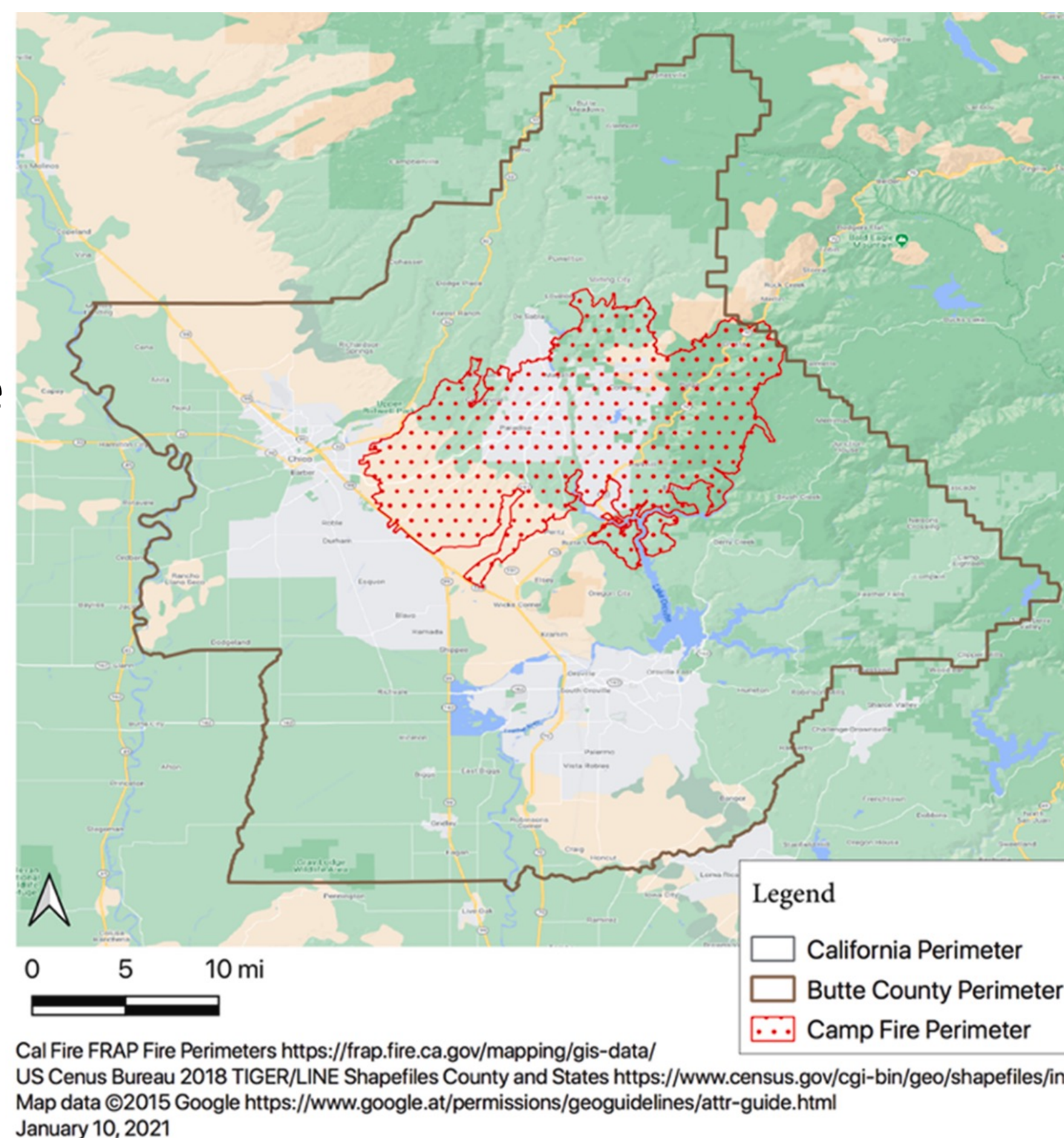
Research Question

How can we conceptualize *evacuation quality* in wildfire evacuations?

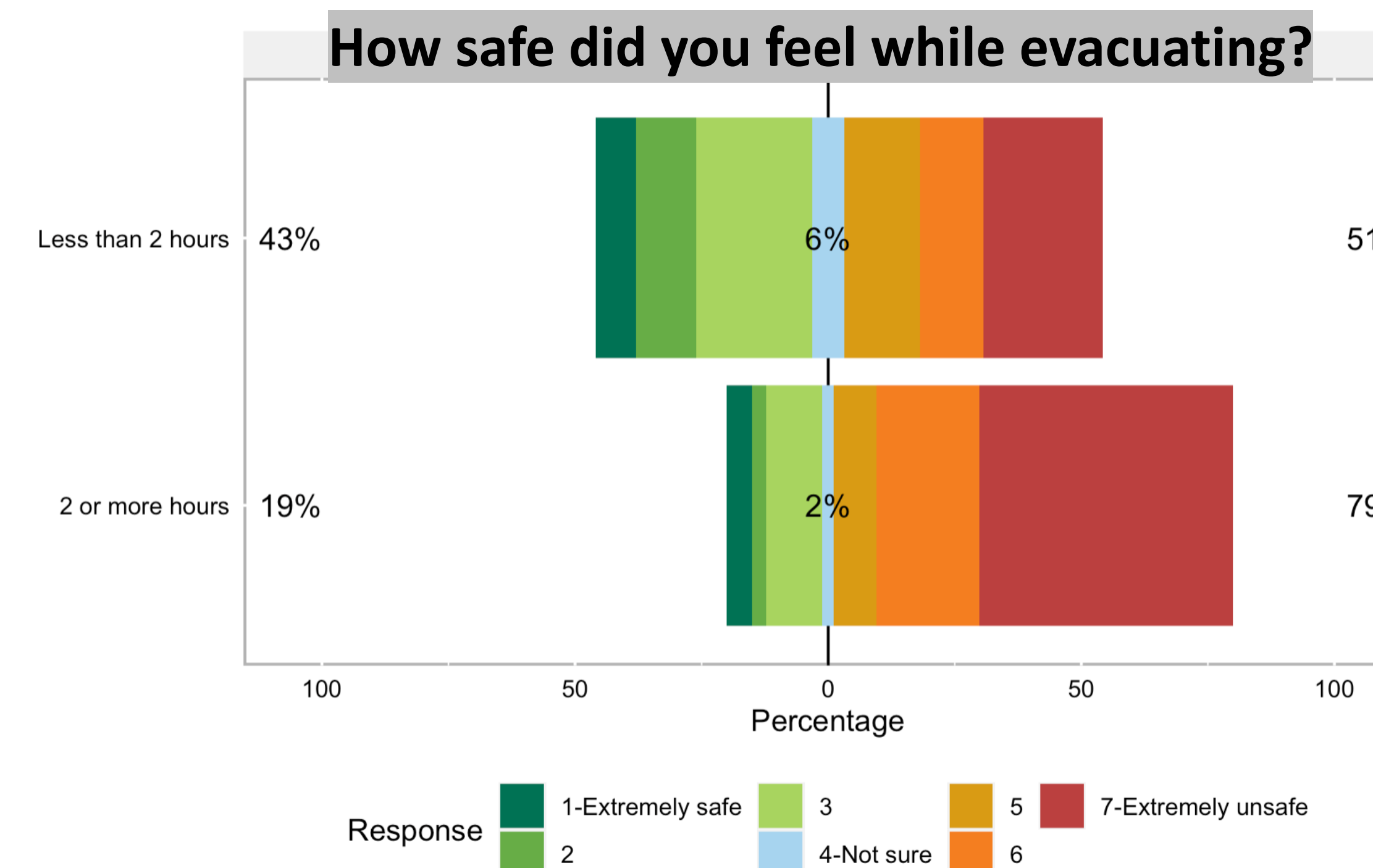
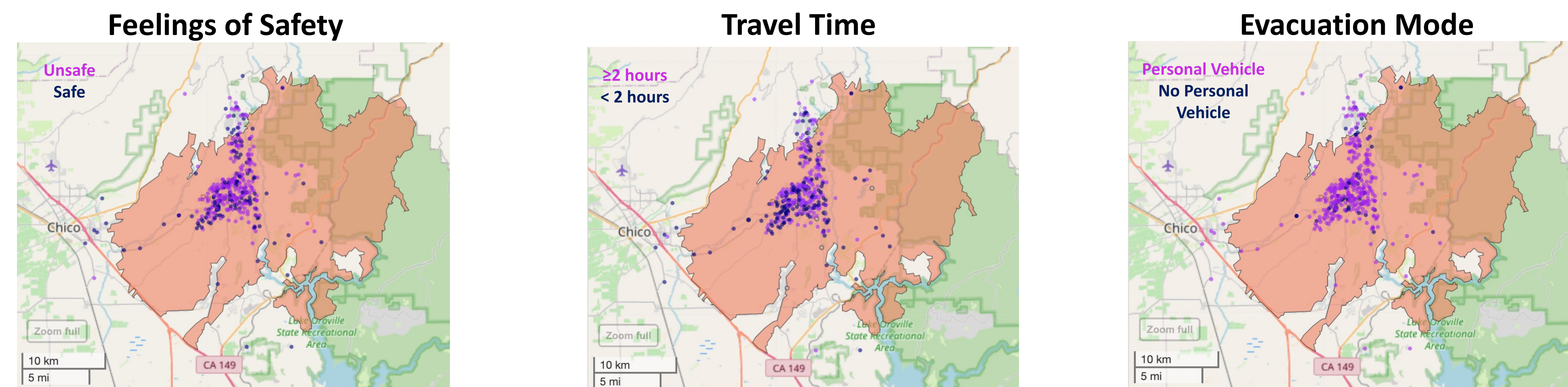
How does *evacuation quality* compare to traditional evacuation planning metrics like evacuation travel time?

Background:

- Vastly different evacuation experiences across evacuees in 2018 Camp Fire
 - Short-notice, fast-moving wildfire
 - 85 deaths, 18,000+ structures burned
- Traditional evacuation modeling does not account for evacuation quality or safety
- Feelings of safety have a large impact on evacuees' experiences



Findings



For those who reported feeling safe, 67% evacuated in under 2 hours

For those who reported **feeling unsafe**, 63% evacuated in over 2 hours

Safety and travel time did not correlate with use of a personal vehicle

"It took four and a half hours to get down that hill, which normally takes you 17 minutes."

"I didn't really feel unsafe except for once we got down close to the fire and it started to get dark, and it got darker, and darker, and darker, and you just start to see flames. I started wondering, "When we get into there, we can't see it. Once we get in there, is it going to be over?"

"Mind-boggling scared. Imagine a wall of fire on both sides of you. First you panic, then you scream, then you cry, then you calm down for a second, and then you do it all over again. And then you go numb. You don't know what to do. You're just reacting."



"I thought I was left for dead. I thought they forgot about me or something, or maybe they thought I was evacuating somewhere else. But I was stuck there."

Methods and Data

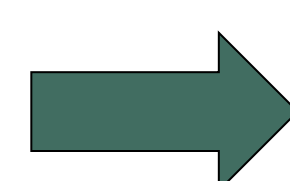
- Rapid post-evacuation survey (N=434) and semi-structured interviews (N=27)
- 2018 Camp Fire in northern California
- Qualitative data: descriptions of safety
- Quantitative survey data: measure the relationships between safety, travel time, and personal vehicle

Evacuation Parameters

- Notifications
- Awareness time
- Departure time
- Origin

Personal Attributes & Resources

- Sociodemographics
- Vehicle/mode
- Origin



Outcomes

- Evacuation travel time
- Feelings of safety

Importance and Next Steps

- Travel time may be an appropriate proxy for feelings of safety in short-notice wildfire evacuations
- Next steps: compare multinomial logit models of safety and evacuation travel time as outcomes
 - Built environment and socio-demographic independent variables
- Equity and evacuation: explore demographics and resources
- Develop safety metrics for evacuation modeling & planning

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